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FORTUNE

AMERICA'S MOST ADMIRED CORPORATIONS

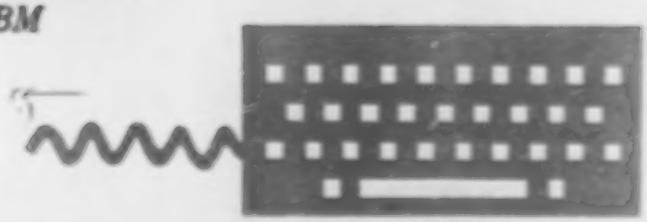
FORTUNE'S ANNUAL SURVEY

Coca-Cola

IBM

3M

Dow Jones



Hewlett-Packard

UNION CARBIDE: COPING WITH CATASTROPHE

CAN CHRYSLER KEEP THE PEDAL TO THE METAL?

MARVIN DAVIS: HOLLYWOOD'S FOXIEST FINANCIER

JANUARY 7, 1985 VOL. 111, NO. 1

FORTUNE

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AMERICA'S MOST ADMIRED CORPORATIONS

The way big companies are perceived can change overnight—ask Union Carbide. Except for No. 1 IBM, last year's ten most admired have swapped places or disappeared. Who's least admired? Continental Illinois displaces International Harvester. ■ *by Patricia Sellers*

ONCE AGAIN IBM is the most admired of 250 large U.S. corporations ranked in FORTUNE's annual survey of corporate reputations. But after two years as the least admired company, International Harvester has moved up to No. 245, turning the cellar spot over to one of its big lenders, Continental Illinois. Elsewhere in the survey, too, change is rampant. Minnesota Mining & Manufacturing becomes one of the ten most admired companies for the first time, and Eastman Kodak returns to the top ten. Coca-Cola rises from ninth to second, right on IBM's heels. Gone from the top ten: Time Inc., publisher of FORTUNE, now No. 22, and Johnson & Johnson, now No. 18.

At the other end of the list, for the first time industrial companies don't predominate. Five of the bottom ten are in service industries. Besides Continental Illinois, they include a diversified financial company, Financial Corp. of America, and three airlines: Pan Am, Eastern, and TWA. Continental, Financial Corp., and Asarco are making first appearances among the least admired. They replace three industrials: U.S. Steel, now No. 238, and two companies that disappeared from the survey this year, Republic Steel, acquired by LTV, and Warner Communications, which is no longer large enough to be included in the survey. Warner's revenues in 1983 declined sharply as its Atari subsidiary staggered; Atari was sold in 1984.

Admiration seems to go hand in hand with profits (see box, page 22). Median return on shareholders' equity of the ten most admired was 18% in 1983, compared with 10.6% for the FORTUNE 500. None of the top ten has had an annual loss in 35 years or more. By contrast, five of the least admired reported losses in 1983, and the median return on equity of the other five was 8.1%.

A company need not reward its shareholders generously to be among the most admired. The top group's median total return to investors (stock appreciation plus reinvested dividends) was only 10.3% annually over the past ten years. That was better than the 5.7% annual median return of the least admired, but not as good as the FORTUNE 500's 14.6%. In 1983 alone, the ten most admired returned a median 15.5% to shareholders, below both the 18.7% median return of the least admired and the 30.2% return of the 500. "This surprises me a little, but it shows you that when everybody loves a company, beware of the stock," says John D. Connolly, investment strategist at Dean Witter Reynolds, a New York brokerage firm.

In the corporate reputations survey, FORTUNE polled 8,000 executives, outside directors, and financial analysts. About 52% responded—a good return. Those surveyed were asked to rate the ten largest companies in their industry, using a scale of 1 (poor) to 10 (excellent), on eight key attributes: quality of management; quality of products or services; innovativeness; long-term investment value; financial soundness; ability to attract, develop, and keep talented people; community and environmental responsibility; and use of corporate assets. The rankings on the following pages show how each company is regarded in its industry.

The industries surveyed are 25 of the largest in the FORTUNE 500 and FORTUNE Service 500 directories of U.S. industrial and non-industrial corporations. Industries with fewer than ten companies—textiles, tobacco, and shipbuilding, for example—were excluded from the survey. All but one of this year's industry groups were included in last year's survey: rubber and plastic products has replaced mining and crude oil production, a group that shrank to nine companies when Mobil purchased Superior Oil.

FORTUNE bases its industry groups on categories established by the U.S. Office of Management and Budget. Companies are assigned to industry groups according to the business that contributed most to 1983 sales (or assets, for certain industries). Sometimes a company competes in an industry group where it feels it doesn't belong. For example, a top executive of Gulf & Western Industries complains that his company shouldn't be rated with the apparel group because G&W is a conglomerate with interests in films (Paramount), publishing (Simon & Schuster), financial services, and electronics, as well as apparel. Gulf & Western ranks eighth in the apparel group.

Top-ranked IBM scored slightly lower than last year—8.44 vs. 8.53—but still handily beat the other companies in the survey on four attributes: management quality, investment value, financial soundness, and use of assets. IBM's biggest decline in score was for innovativeness; it dropped from third to fourth among the ten companies in its industry. A possible reason: IBM's PCjr home computer, introduced in late 1983, was a dud until the company updated it with an expand-

ILLUSTRATIONS BY JOHN PIRMAN

AT THE TOP AND BOTTOM OF THE 256 COMPANIES

The most admired

IBM continues its reign as the most admired large U.S. corporation. Eastman Kodak returns to the top ten after falling out of the group last year, while 3M makes a first appearance. The scores are averages of ratings on eight attributes of reputation.

Rank	Company	Industry Group	Score
1	**IBM**	Office equipment, computers	**8.44**
2	**Coca-Cola**	Beverages	**8.34**
3	**Dow Jones**	Publishing, printing	**8.31**
4	**3M**	Precision instruments	**8.13**
5	**Hewlett-Packard**	Office equipment, computers	**8.08**
6	**Anheuser-Busch**	Beverages	**7.96**
7	**Boeing**	Aerospace	**7.80**
8	**General Electric**	Electronics, appliances	**7.79**
9	**Eastman Kodak**	Precision instruments	**7.72**
10	**Merck**	Pharmaceuticals	**7.66**

The least admired

Continental Illinois, Financial Corp. of America, and Asarco are newcomers. International Harvester plows out of last place. Eastern and Pan Am tied in total points—and in the tie breaker each outscored the other on four of eight attributes.

Rank	Company	Industry Group	Score
250	**Continental Illinois**	Commercial banking	**2.58**
249	**Financial Corp. of America**	Diversified financial	**3.41**
248	**Manville**	Glass, concrete, abrasives, gypsum	**3.80**
246	**Pan Am**	Transportation	**3.86**[1]
246	**Eastern Air Lines**	Transportation	**3.86**[1]
245	**International Harvester**	Motor vehicles and parts	**4.11**
244	**American Motors**	Motor vehicles and parts	**4.37**
243	**TWA**	Transportation	**4.42**
242	**Asarco**	Metal manufacturing	**4.57**
241	**Pabst Brewing**	Beverages	**4.59**

[1]Tie. Each scores higher than the other on four of eight attributes.

EIGHT KEY ATTRIBUTES OF REPUTATION

Quality of management

Most admired	Score
IBM	9.15
Dow Jones	8.62
Anheuser-Busch	8.61

Least admired	Score
Continental Illinois	1.83
Financial Corp. of America	2.76
Manville	3.97

Innovativeness

Most admired	Score
Citicorp	8.93
Gannett	8.32
3M	8.27

Least admired	Score
Continental Illinois	4.07
Asarco	4.23
St. Regis	4.36

Quality of products or services

Most admired	Score
Dow Jones	9.04
Boeing	8.87
Coca-Cola	8.78

Least admired	Score
Financial Corp. of America	4.50
Continental Illinois	4.88
Eastern Air Lines	4.96

Long-term investment value

Most admired	Score
IBM	8.83
Dow Jones	8.33
Coca-Cola	8.26

Least admired	Score
Continental Illinois	1.41
Eastern Air Lines	2.45
Financial Corp. of America	2.57

ed memory and more workable keyboard. The rapid response to PCjr's marketing problems won kudos. "One of the things that's tremendously admirable about IBM is its ability to adjust quickly to market demands," says Carol Muratore, a computer analyst with Prudential-Bache Securities, a New York investment firm.

The ballots FORTUNE received near the close of the survey period rated IBM particularly high, suggesting that respondents liked IBM's flurry of late-September announcements—a $1.25-billion merger with Rolm Corp., a telecommunications equipment maker; a step into the personal computer software market; and the naming of President John F. Akers to succeed John R. Opel as chief executive in February.

The second most admired corporation, Coca-Cola, ranks among the three most admired for quality of products, investment value, financial soundness, and use of assets. The world's largest beverage company, Coca-Cola leads its industry group in every category except quality of management, where Anheuser-Busch has the edge.

Coca-Cola scored its biggest gain in innovativeness. "Diet Coke, no doubt," says Chairman Roberto C. Goizueta, speaking of the most successful new product in soft-drink history. After taking charge in 1981, Goizueta introduced Diet Coke, reorganized the company's bottler network, and acquired

Financial soundness

Most admired	Score
IBM	9.41
Coca-Cola	8.94
Dow Jones	8.89

Least admired	Score
Continental Illinois	1.40
Financial Corp. of America	1.97
Eastern Air Lines	2.04

Community and environmental responsibility

Most admired	Score
Eastman Kodak	8.35
Johnson & Johnson	8.09
IBM and 3M (tie)	7.96

Least admired	Score
Manville	3.13
Financial Corp. of America	3.58
Continental Illinois	4.20

Ability to attract, develop, and keep talented people

Most admired	Score
Hewlett-Packard	8.36
IBM	8.29
Dow Jones	8.22

Least admired	Score
Continental Illinois	1.85
Manville	3.37
International Harvester	3.38

Use of corporate assets

Most admired	Score
IBM	8.52
Dow Jones	8.09
Coca-Cola	8.07

Least admired	Score
Continental Illinois	1.14
Financial Corp. of America	2.06
Eastern Air Lines	3.71

Columbia Pictures, which has come up with hits like *Tootsie*, *The Big Chill*, and 1984's top-grossing *Ghostbusters*. "We were like Wilt Chamberlain playing basketball on our knees," says Goizueta of the old Coca-Cola. "We had the talents but weren't using them. Now we're willing to take risks."

Dow Jones, the smallest of the ten most admired companies (1983 sales: $866.4 million), ranks third overall and first for product quality. Publisher of the *Wall Street Journal*, Dow Jones earned a lofty return on equity of 27.4% in 1983 (FORTUNE, December 24, 1984). But security analysts who participated in FORTUNE's survey ranked the company only second in the publishing group for investment value. Gannett, publisher of *USA Today*, is first in that respect, though Gannett had a 1983 return on equity of 18.8%.

A company that corporate executives and outside directors like more overall than financial analysts is 3M, which jumped from No. 11 to No. 4. Analysts ranked 3M 14th and gave it relatively poor scores for investment value and use of assets. The Minnesota company, selected by FORTUNE as one of eight corporate masters of innovation (October 15, 1984), rates among the top three in the whole survey for responsibility and innovativeness. New 3M products in 1984 included the first bionic ear, an electronic implant for deaf people.

Hewlett-Packard has the fastest-growing

profits of the ten most admired—earnings per share grew 21.75% compounded annually over the past decade—but it slipped from third to fifth place. The company had problems in 1984—personal computers that ran into distribution problems and were too high priced to compete with IBM, plus a management reorganization that got some bad press. But Hewlett-Packard again beat IBM on product quality and innovativeness and is tops in ability to attract talented people.

America's largest brewer, Anheuser-Busch, rose from No. 8 to No. 6. By spending heavily on marketing in the late 1970s, the company has built market share to 34%, from 26% in 1978. Says Arthur Kirsch, beverage analyst with Drexel Burnham Lambert, a securities firm, "They're the class company in the industry. Anheuser-Busch is pulling away from No. 2 Miller and making mincemeat of everybody else."

Boeing, which supplies 60% of the non-Communist world's commercial jets, climbed to No. 7. It ranks first in the aerospace group for every attribute and second among the 250 for product quality. Boeing improved its score for financial soundness and now ranks No. 27 for that attribute. The company's shareholders have enjoyed an average annual return of 36.9% over the past ten years, a better payback than for any other company in the most admired group.

The best category for General Electric,

THE SURVEY'S BIGGEST GAINERS—AND LOSERS

■ Industry trends and gains or declines in profits seem to have a lot to do with how companies' scores changed since last year's survey of corporate reputations. The ten companies that had the largest point gains from last year posted a median profit increase of 116% in the first nine months of 1984—and each had a profit gain of at least 49.6% from the same period in 1983. All but two of the ten companies with the largest drops in scores recorded declines in earnings for the first nine months. The exceptions: St. Regis and Aetna Life. Two of the ten—Continental Illinois, whose score took the biggest hit, and Armco—lost money as well as points.

Buoyed by recovery of the airline industry, profits of the survey's biggest point gainer—AMR, parent of American Airlines—doubled in the first nine months of 1984. Its score in the survey went from 5.94 to 6.89, and its standing in the transportation group rose from sixth to third. AMR scored its biggest point gains for quality of management, investment value, and financial soundness. It ranks first among transportation companies for innovativeness. American's cost-saving two-tier wage pact, which pays new workers as little as half of old workers' salaries, is being adopted by competitors. UAL, owner of airline giant United, climbed from seventh to sixth in the transportation group and is another of the biggest point gainers.

Scores of the Big Three automakers soared this year as they turned in record profits after a three-year slump that was the longest and deepest since World War II. With prosperity, General Motors, Ford, and Chrysler sharply improved their ratings for financial soundness. So short of cash three years ago that it raised $500 million by selling a purchase option on its New York office tower, GM rose to fourth among the survey's 250 companies for financial soundness. And for the first time since the survey began, GM leads the motor vehicles and parts group. Last year the company ranked No. 3 in the group.

Ford jumped from sixth to fourth, perhaps helped by better ideas—like a switch from boxy styling to rounded aerodynamic design. Ford still ranks behind GM and Chrysler for management quality but scored ahead of its big rivals for product quality—it was rated the best automaker in that category. Chrysler moved from seventh to fifth overall in the auto group and scored best for management and innovativeness. The first manufacturer to bring back the convertible in 1982 and now the first U.S. automaker to produce the hot-selling minivan, Chrysler ranks seventh for innovativeness among the 250 companies in FORTUNE's survey.

The auto industry's turnaround made things easier for glassmaker Libbey-Owens-Ford as well. The company, which posted the fifth-largest point gain in FORTUNE's survey, supplies about 60% of GM's glass needs. Two other big gainers in Libbey's industry group, U.S. Gypsum and National Gypsum, benefited from early 1984's home construction boom. U.S. Gypsum ranks fifth in the building materials group, but security analysts rated the company best of the bunch, even higher than PPG Industries and Corning Glass Works.

Two companies that posted large point gains—Mead and RCA—have spent the past couple of years divesting themselves of unprofitable or ill-fitting divisions. Mead jumped from ninth to fourth in the forest products group, with a substantial increase in its score for financial soundness. The company has been reducing debt and has divested all nonpaper operations except its fast-growing Mead Data Central, which includes an electronic news retrieval system called Nexis and a computerized legal research service named Lexis.

RCA's standing among the 250 companies has risen sharply. Two years ago the company was on the least admired list, but this year it moved all the way up to No. 161. After a decade of management shake-ups and ill-fated acquisitions, RCA is focusing on the businesses it knows best—electronics, communications, and entertainment (NBC). But RCA still ranks eighth among the ten diversified service companies surveyed. Its rating for asset management: last of the group.

Practically all news was bad news in the banking industry in 1984, and scores declined for eight of the ten banking companies—all except Security Pacific and Bankers Trust New York. Continental Illinois, Manufacturers Hanover, and BankAmerica posted large enough score declines to make the list of biggest point losers. Continental's score plunged more than two points to 2.58, the lowest composite score ever recorded in FORTUNE's survey, making the company the least admired of 250 big U.S. corporations.

Manufacturers Hanover, whose problem loans in Latin America have generated a lot of publicity, slipped from seventh to eighth in its group and recorded big declines for soundness and use of assets. BankAmerica, the second-largest bank holding company, fell from sixth to seventh among the banks after ranking third in the group two years ago. "BankAmerica's turnaround is taking longer

No. 8, is management quality, where it ranks fourth among the 250 firms. That's a tribute to no-nonsense Chairman John Welch Jr., who has shown little mercy in scrapping slow-growth, low-return businesses (FORTUNE, August 6, 1984). In the electronics group, GE scored best for all attributes except innovativeness and responsibility.

Ninth-ranked Eastman Kodak scored big where many of the top ten fared poorly—community and environmental responsibility. Kodak ranks first in that category and fourth among the 250 for product quality, but doesn't do nearly as well on management, innovativeness, and investment value. Security analysts, in particular, seemed unimpressed with Kodak's 1984 profit turnaround from a distressing 1983.

After ranking No. 4 last year (and No. 5 the year before), Merck slid to tenth place. Again the security analysts were less enthusiastic than other survey respondents. They ranked Merck 24th among the 250 companies and third in the drug group behind Abbott Laboratories and Bristol-Myers. Long known as the industry's research powerhouse, Merck hit a dry spell about five years ago that it is only now emerging from, and has encountered labor, regulatory, and foreign exchange problems.

Merck's problems pale, however, beside those of the least admired companies. Continental Illinois ranked last in the commercial banking group last year, and its score declined more than two points this year, putting the company last among the 250. Its lowest rating—a pathetic 1.14—was for use of assets. It ranks last among the 250 companies for every attribute except community and environmental responsibility and quality of products or services.

Financial Corp. of America, which until

Biggest gainers

Company	Score	Point change
AMR (American Airlines)	6.89	+.95
General Motors	7.50	+.87
Ford Motor	6.72	+.77
Chrysler	6.61	+.70
Libbey-Owens-Ford	6.07	+.69
Mead	5.83	+.63
U.S. Gypsum	6.20	+.62
UAL (United Airlines)	6.48	+.62
National Gypsum	5.64	+.61
RCA	6.08	+.61

Biggest losers

Company	Score	Point change
Continental Illinois	2.58	−2.31
Levi Strauss	6.63	− .91
Merrill Lynch	6.59	− .90
Armco	4.80	− .79
ITT	5.08	− .76
St. Regis	4.62	− .73
Manufacturers Hanover	5.39	− .73
BankAmerica	5.46	− .71
Aetna Life	5.69	− .71
American Express	6.74	− .70

Ups and Downs in Total Scores

These tables show which companies had the biggest increases and decreases in scores from last year. Changes greater than 0.3 are statistically significant. Industrial companies are big point gainers this year, while most of the biggest losers are service firms.

than everyone thought," says one security analyst. "It's like turning a battleship around in a bathtub."

The only insurance company on the list of biggest point losers is Aetna Life, which tumbled from fourth to seventh among the insurers and scored worst of the ten for soundness and asset management. In part, its decline may be attributed to the troubles of its parent, Aetna Life & Casualty, which lost almost a billion pretax dollars on property and casualty underwriting in 1982-83. American Express, ITT, and Armco also got nipped by underwriting losses in property and casualty units. With big problems in its Fireman's Fund insurance subsidiary, American Express scored one of the ten biggest point losses among the 250 companies in the survey, but it still held on to second place in the diversified financial group. ITT's Hartford Insurance is just one of the conglomerate's businesses that have been clobbered in the past couple of years. ITT fell from eighth to least admired in the electronics group.

Armco, the FORTUNE 500's second-biggest money loser in 1983, thought it was being smart when it diversified into insurance. Wrong. The Ohio steelmaker eliminated its dividend last August after failing to sell its money-losing insurance operations. Ranked second among metal manufacturers in FORTUNE's survey two years ago, Armco now ranks eighth. Financial analysts rated it lowest among metal manufacturers.

Two companies on the list of biggest point losers fell from the top spots in their industry groups for the first time. After a year of slim profits, layoffs, and management restructuring, Merrill Lynch dropped to third among the diversified financial companies. The drop in Merrill Lynch's score for management quality was particularly precipitous. Levi Strauss has battled overcapacity by closing plants and cutting staff. But the company doesn't earn points for its efforts. The once highly profitable jeans maker, slow to diversify away from a sagging market for its biggest product, plunged from first to fourth in the apparel group on a decline in score of almost a full point.

St. Regis, the only forest products company among the big point losers, slipped from seventh to last place in its industry group, coming up with a dismal overall score of 4.62. The company owns a profitable insurance business, but no matter: it spent most of 1984 and more than $160 million tussling with unwanted suitors before agreeing to be bought by Champion International to create the world's largest paper company.

this year was too small to be included in the survey, fell into second-to-last place. FCA, parent of American Savings & Loan Association, the largest U.S. thrift institution, scored last among the 250 for product quality and among the bottom three for five other attributes. Yet it ranks in the top half of the survey group for being innovative. With liberal accounting and a high-risk growth strategy, FCA's previous management made earnings per share grow faster from 1973 to 1983 than those of any other company among the 100 largest diversified financial firms. FCA's investors got a lofty ten-year return of 45.5% annually. In 1984, the company had to restate earnings, sparking a run on deposits, and the management was changed. "Those innovations did them in," says one security analyst.

While the airline industry staged a remarkable recovery in 1984, three airline companies landed among the ten least admired: TWA, Eastern, and Pan Am. Eastern scored last in the transportation group, and among the survey's bottom three, for four attributes—quality of products or services, investment value, financial soundness, and asset management. Pan Am, whose labor costs mounted in 1984, ranks below Eastern for the four remaining attributes. Only TWA is expected to earn a profit in 1984.

Manville, No. 248, is making money, but has about 25,000 lawsuits lodged against it for supplying asbestos. The Denver-based company, still in bankruptcy court, ranks last for responsibility and among the three least admired for management and ability to attract talented people. Chairman John A. McKinney says many executives in the building materials industry don't like his company because their firms have sued and been sued by Manville. However, financial analysts surveyed gave Manville even lower ratings than executives and directors did.

International Harvester's reputation is improving. Two years ago Harvester scored just 2.62 overall. Last year its score rose to 3.64, and now it is 4.11. Once ranked among the three least admired for every attribute except product quality, Harvester this year landed in the bottom three only for ability to attract talented people.

Feeble American Motors, No. 244, couldn't climb out of the bottom ten even though 1984 was the best year automakers ever had. Despite some successful products—its Renault-designed Alliance was *Motor Trend* magazine's 1983 Car of the Year and the new Jeep Cherokee won a spate of awards in 1984—the company scored lowest in its group for product quality. In a market that has turned back to size and luxury, AMC is still making only relatively austere subcompacts and expects only a small profit this year. Admits Chief Executive José Dedeurwaerder: "We need a broader product range."

HARSH MARKETS battered the other two least admired companies. Asarco, a mining firm that ranks No. 242, saw its slim profits collapse as silver and copper prices tumbled in 1984. Pabst, No. 241, floundered as Anheuser-Busch strengthened its domination of the beer industry.

The reputations of individual companies often rise and fall with their industries' health, but the chief lesson to be drawn from this year's survey is clear: good managers build golden reputations. Respondents overwhelmingly rated management quality as the most important attribute in gauging corporate reputations.

HOW COMPANIES RANK IN 25 INDUSTRIES

The industry groups are based on categories established by the U.S. Office of Management and Budget. Each company is assigned to an industry group according to the business that contributed most to 1983 sales (or assets, for certain industries).

Aerospace

Boeing leads its industry group as usual. Lockheed has climbed from No. 8 to No. 2 in three years, but memories of near bankruptcy in 1971 linger: it ranks eighth for financial soundness. General Dynamics rates last for product quality and community and environmental responsibility.

Rank	LAST YEAR	Company	Score
1	1	Boeing	7.80
2	4	Lockheed	6.90
3	3	Rockwell International	6.80
4	2	United Technologies	6.78
5	8	Signal Cos.	6.74
6	6	McDonnell Douglas	6.73
7	7	Northrop	6.72
8	5	General Dynamics	6.53
9	9	Martin Marietta	6.45
10	10	Grumman	6.17

Apparel

Levi Strauss, which hasn't had much luck diversifying away — from a fading jeans market, tumbles from the top apparel spot for the first time. The new champ is VF, the maker of Lee jeans and Vanity Fair intimate apparel. VF got particularly high marks from security analysts. Hartmarx rates tops for product quality.

Rank	LAST YEAR	Company	Score
1	2	VF	7.30
2	3	Hartmarx	7.13
3	–	Oxford Industries[1]	6.68
4	4	Interco	6.63[2]
4	1	Levi Strauss	6.63[2]
6	5	Warnaco	6.62
7	6	Cluett Peabody	6.42
8	9	Gulf & Western Industries	6.04
9	10	Kellwood	5.75
10	8	Blue Bell[3]	5.65

Chemicals

FORTUNE's survey was completed before Union Carbide's catastrophic gas leak in India, but among the 250 companies it is only No. 195. The one category in which it ranks in the top half of its industry group: community and environmental responsibility. Du Pont scores highest except for use of assets.

Rank	LAST YEAR	Company	Score
1	1	Du Pont	7.47
2	2	Monsanto	6.88
3	3	Dow Chemical	6.71
4	4	Hercules	6.39
5	6	American Cyanamid	6.18
6	7	W.R. Grace	5.78
7	5	Union Carbide	5.68
8	–	Williams Cos.[1]	5.39
9	10	Celanese	5.33
10	–	National Distillers & Chemical[1]	5.18

Beverages

Coke is it. The world's largest beverage company replaces Anheuser-Busch as the group's most admired. Coca-Cola leads for every attribute except management quality, for which it ranks second to Anheuser-Busch. PepsiCo improved its score but remains a distant third. General Cinema is a Pepsi bottler.

Rank	LAST YEAR	Company	Score
1	2	Coca-Cola	8.34
2	1	Anheuser-Busch	7.96
3	3	PepsiCo	7.37
4	–	MEI[1]	7.06
5	7	General Cinema	7.02
6	5	Joseph E. Seagram & Sons	6.78
7	6	Brown-Forman	6.47
8	4	G. Heileman Brewing	6.45
9	9	Adolph Coors	5.87
10	10	Pabst Brewing	4.59

Commercial banking

J.P. Morgan, the most profitable of the major banking companies, rates first in its group for every attribute except innovativeness and community responsibility. Citicorp leads the 250 for innovativeness but ranks fifth in the banking group for financial soundness. BankAmerica gets the nod for responsibility.

Rank	LAST YEAR	Company	Score
1	1	J.P. Morgan	7.49
2	2	Citicorp	7.29
3	3	Security Pacific	7.04
4	4	Bankers Trust New York	6.65
5	5	First Interstate Bancorp	6.07
6	8	Chemical New York	5.90
7	6	BankAmerica	5.46
8	7	Manufacturers Hanover	5.39[4]
9	9	Chase Manhattan	5.39[4]
10	10	Continental Illinois	2.58

[1] Not ranked last year.
[2] Tie. Each scores higher than the other on four of eight attributes.
[3] Taken private November 1984.
[4] Tie. Manufacturers Hanover scores higher than Chase Manhattan on five of eight attributes.

HOW COMPANIES RANK IN 25 INDUSTRIES

Diversified financial

First Boston, an investment banking firm, overtakes American Express and Merrill Lynch, which remains No. 1 for innovativeness. American Express is first for investment value and quality of products or services. Cigna, hit by property and casualty underwriting losses, slides to ninth.

Rank	LAST YEAR	Company	Score
1	3	First Boston	6.92
2	2	American Express	6.74
3	1	Merrill Lynch	6.59
4	5	Travelers Corp.	6.18
5	6	Aetna Life & Casualty	5.91
6	9	Great Western Financial	5.88
7	8	Federal Natl. Mortgage Assn.	5.71
8	10	H.F. Ahmanson	5.64
9	7	Cigna	5.59
10	–	Financial Corp. of America[1]	3.41

Electronics, appliances

Motorola scores best for innovativeness and AT&T Technologies (AT&T's manufacturing arm) for responsibility, but General Electric captures first place for all other attributes. ITT tumbles to last, taking the place of Warner Communications, which is now too small to be included in the survey.

Rank	LAST YEAR	Company	Score
1	1	General Electric	7.79
2	2	Motorola	7.06
3	3	Emerson Electric	7.01
4	–	AT&T Technologies[2]	6.74
5	5	Raytheon	6.27
6	6	Texas Instruments	6.20
7	–	North American Philips[1]	5.95
8	7	Westinghouse Electric	5.79
9	8[3]	Litton Industries	5.64
10	8[3]	ITT	5.08

Diversified services

After a management shake-up at Phibro-Salomon, the investment banking and commodities trading firm slips to second in its group for management quality—but is still most highly regarded in the group overall. Super Valu Stores scores highest for management quality, investment value, and responsibility.

Rank	LAST YEAR	Company	Score
1	1	Phibro-Salomon	6.98
2	3	Super Valu Stores	6.94
3	2	Halliburton	6.82
4	6	Fleming Cos.	6.59
5	5	McKesson	6.54
6	7	CBS	6.48
7	4	Fluor	6.23
8	8	RCA	6.08
9	10	Farmland Industries	5.89
10	9	City Investing	5.62

Food

General Mills' 21-year streak of annual earnings increases ended in 1984, but the company still leads for every attribute. Beatrice, debt-heavy from its recent $2.8-billion acquisition of Esmark, sinks from ninth to tenth, despite an avalanche of image-touting advertising in 1984 ("You've known us all along").

Rank	LAST YEAR	Company	Score
1	1	General Mills	7.44
2	2	General Foods	7.01
3	4	Nabisco Brands	6.96
4	3	Dart & Kraft	6.79
5	6	Ralston Purina	6.67
6	7	Consolidated Foods	6.35
7	5	CPC International	6.06
8	8	Borden	5.98
9	–	Archer Daniels Midland[1]	5.92
10	9	Beatrice	5.26

[1] Not ranked last year.
[2] Not ranked last year. Wholly owned by AT&T.
[3] Tied last year.

Forest products

Kimberly-Clark, which makes Kleenex, scores an easy win and rates best in the group for every attribute except financial soundness and community and environmental responsibility. Weyerhaeuser leads in those categories. International Paper's drop from fourth to eighth came on a small decline in score.

Rank	LAST YEAR	Company	Score
1	1	Kimberly-Clark	7.19
2	2	Weyerhaeuser	6.44
3	3	Boise Cascade	6.00
4	9	Mead	5.83
5	8	Scott Paper	5.79
6	5	Champion International	5.60
7	6	Georgia-Pacific	5.59
8	4	International Paper	5.53
9	10	Crown Zellerbach	5.12
10	7	St. Regis[1]	4.62

Industrial and farm equipment

Cooper Industries, a Houston-based maker of hand tools and oil and natural gas equipment, ranks first for asset use and ability to attract talented people. Cooper has diversified into electronic and electrical gear. Deere is still first for management quality and community and environmental responsibility.

Rank	LAST YEAR	Company	Score
1	–	Cooper Industries[2]	6.86
2	1	Deere	6.81
3	3	Teledyne	6.78
4	5	Combustion Engineering	6.50
5	4	Borg-Warner	6.43
6	2	Caterpillar Tractor	6.41
7	6	Dresser Industries	6.34
8	7	Textron	6.29
9	10	Ingersoll-Rand	5.96
10	8	Baker International	5.94

Glass, concrete, abrasives, gypsum

Corning Glass Works is most admired for four attributes—product quality, innovativeness, soundness, and responsibility. PPG Industries beats it on the other four. If security analysts alone had voted, Corning would have ranked third behind U.S. Gypsum and PPG. CertainTeed ranks ninth for every attribute.

Rank	LAST YEAR	Company	Score
1	1	Corning Glass Works	6.92
2	2	PPG Industries	6.74
3	3	Owens-Corning Fiberglas	6.55
4	4	Owens-Illinois	6.25
5	6	U.S. Gypsum	6.20
6	5	Norton	6.17
7	7	Libbey-Owens-Ford	6.07
8	9	National Gypsum	5.64
9	–	CertainTeed[2]	5.16
10	10	Manville	3.80

Life insurance

Scores declined across the board, with Aetna Life and Connecticut General hit hardest. Northwestern Mutual ranks No. 1 for six attributes. Prudential, the largest life insurer, wins for innovativeness and ties with Aetna Life for responsibility. Aetna ranks last for financial soundness and asset use.

Rank	LAST YEAR	Company	Score
1	1	Northwestern Mutual	7.16
2	2	Prudential	6.59
3	5	Travelers[3]	6.11
4	6	Teachers Insurance & Annuity	5.88
5	7	John Hancock Mutual	5.86
6	3	Connecticut General Life[4]	5.81
7	4	Aetna Life[5]	5.69
8	8	New York Life	5.68
9	9	Equitable Life Assurance	5.64
10	10	Metropolitan	5.[illegible]

[1] Acquired by Champion International November 1984.
[2] Not ranked last year.
[3] Wholly owned by Travelers Corp.
[4] Wholly owned by Cigna.
[5] Wholly owned by Aetna Life & Casualty.

HOW COMPANIES RANK IN 25 INDUSTRIES

Metal manufacturing

This group scores lower overall than any other, and only Reynolds Metals and National Intergroup improved their ratings. Asarco lands among the ten least admired of the 250 companies, while Alcoa remains most admired for every attribute. Kaiser Aluminum is the least admired for management quality.

Rank	LAST YEAR	Company	Score
1	1	Alcoa	6.89
2	4	Reynolds Metals	5.88
3	3	Northwest Industries	5.67
4	2	Inland Steel	5.59
5	7	National Intergroup[1]	5.48
6	6	LTV	5.20
7	8	Kaiser Aluminum & Chemical	4.91
8	5	Armco	4.80
9	9	Bethlehem Steel	4.68
10	–	Asarco[2]	4.57

Motor vehicles and parts

General Motors, moving up smartly, ranks as most admired of its group for five attributes. Chrysler wins for management quality and innovativeness, while TRW remains tops for product quality. American Motors is tenth for product quality and investment value. International Harvester is last in the other categories.

Rank	LAST YEAR	Company	Score
1	3	General Motors	7.50
2	1	TRW	7.17
3	2	Dana	6.93
4	6	Ford Motor	6.72
5	7	Chrysler	6.61
6	4	Paccar	6.38
7	–	Ex-Cell-O[2]	6.15
8	8	Fruehauf	5.49
9	9	American Motors	4.37
10	10	International Harvester	4.11

Metal products

Three companies new to the survey—Masco, Ball, and Stanley Works—make impressive showings but can't unseat Gillette as most admired. Gillette, which makes health and beauty products as well as razor blades, ranks among the survey's top ten for product quality and innovativeness.

Rank	LAST YEAR	Company	Score
1	1	Gillette	7.39
2	–	Masco[2]	7.04
3	–	Ball[2]	6.97
4	–	Stanley Works[2]	6.69
5	2	Parker Hannifin	6.49
6	3	Continental Group[3]	6.35
7	6	American Can	6.29
8	8	Crown Cork & Seal	6.10
9	9	National Can	5.66
10	10	Chromalloy American	5.38

Office equipment, computers

IBM and Hewlett-Packard beat third-ranked Wang by more than a point. IBM scores best for five attributes but trails Hewlett-Packard, Wang, and Digital Equipment for innovativeness. Control Data, often criticized for pumping money into low-return projects, scores worst of the ten for asset use.

Rank	LAST YEAR	Company	Score
1	1	IBM	8.44
2	2	Hewlett-Packard	8.08
3	4	Wang Laboratories	7.07
4	3	Digital Equipment	6.86
5	5	NCR	6.07
6	7	Honeywell	5.78
7	8	Pitney Bowes	5.57
8	6	Control Data	5.50
9	10	Burroughs	5.33
10	9	Sperry	5.00

[1] Ranked as National Steel last year.
[2] Not ranked last year.
[3] Taken private November 1984.

Petroleum refining

Standard Oil (Indiana) outscores Shell for the first time and ranks 11th among the survey's 250 companies. Last year Indiana Standard didn't lead in a single category, but here it rates best in the group for investment value, asset use, and ability to attract talented people. Exxon ranks first for financial soundness.

Rank	LAST YEAR	Company	Score
1	2	Standard Oil (Indiana)	7.65
2	1	Shell Oil	7.54
3	5	Exxon	7.31
4	3	Atlantic Richfield	7.23
5	4	Chevron[1]	6.75
6	6	Mobil	6.35
7	7	Phillips Petroleum	6.15
8	–	Sun[2]	6.01
9	8	Texaco	5.63
10	10	U.S. Steel	4.75

Precision instruments

Eastman Kodak and 3M catapulted into the ranks of the ten most admired companies. Kodak leads in three categories—product quality, financial soundness, and community and environmental responsibility—while 3M takes the others. Polaroid is least admired for investment value and management.

Rank	LAST YEAR	Company	Score
1	1	3M	8.13
2	2	Eastman Kodak	7.72
3	4	EG&G	7.26
4	3	Perkin-Elmer	7.05
5	5	Tektronix	6.86
6	9	Xerox	6.61
7	8	Polaroid	6.47
8	7	Becton Dickinson	6.42
9	6	General Signal	6.38
10	10	Lear Siegler	6.22

Pharmaceuticals

Merck ranks fifth in the drug group for management quality, but its high overall score puts it among the ten most admired. Abbott is the top scorer in its industry group for management quality and asset use. American Home Products wins for financial soundness and Bristol-Myers for investment value.

Rank	LAST YEAR	Company	Score
1	1	Merck	7.66
2	3	Abbott Laboratories	7.57
3	2	Johnson & Johnson	7.48
4	6	Bristol-Myers	7.46
5	4	Pfizer	7.27
6	7	American Home Products	7.02
7	8	Eli Lilly	6.65
8	5	SmithKline Beckman	6.62
9	9	Upjohn	6.20
10	10	Warner-Lambert	6.10

Publishing, printing

This group boasts the highest median score—7.26—and all but Washington Post and Tribune rank in the survey's top 50. Dow Jones is third most admired among the 250. Gannett, publisher of USA Today, *rates second among the 250 for innovativeness but ninth in its group for product quality.*

Rank	LAST YEAR	Company	Score
1	1	Dow Jones	8.31
2	2	Time Inc.	7.42
3	3	Gannett	7.41
4	7	New York Times	7.22
5	8	R.R. Donnelley & Sons	7.21
6	6	Times Mirror	7.21
7	4	McGraw-Hill	7.18
8	5	Knight-Ridder Newspapers	7.06
9	9	Washington Post	6.83
10	10	Tribune	6.11

[1] Formerly Standard Oil of California.
[2] Not ranked last year.

HOW COMPANIES RANK IN 25 INDUSTRIES

Retailing

Sears increased its score only slightly but takes over first place as last year's leader, Federated Department Stores, slips to third. Ranked first last year for only two attributes, Sears is now No. 1 in every category measured except product quality. Federated, the owner of Bloomingdale's and I. Magnin, wins there.

Rank	LAST YEAR	Company	Score
1	2	Sears Roebuck	7.14
2	4	J.C. Penney	6.78
3	1	Federated Department Stores	6.63
4	3	Kroger	6.37
5	7	Safeway Stores	6.35
6	9	K mart	6.28
7	8	American Stores	6.20
8	—	Southland[1]	6.13
9	5	Lucky Stores	6.10
10	10	Household International	5.33

Transportation

United Parcel Service ranks first in the group, but had only security analysts voted, AMR, parent of American Airlines, would be first. UPS leads the group for four attributes, while AMR wins for innovativeness. Delta scores highest for asset use, responsibility, and ability to attract talented people.

Rank	LAST YEAR	Company	Score
1	1	United Parcel Service	7.23
2	2	Delta Air Lines	6.99
3	6	AMR (American Airlines)	6.89
4	4[4]	CSX	6.73
5	—	Santa Fe Southern Pacific[1]	6.52
6	7	UAL (United Airlines)	6.48
7	4[4]	Burlington Northern	6.41
8	8	TWA[5]	4.42
9	10	Eastern Air Lines	3.86[6]
9	9	Pan American World Airways	3.86[6]

Rubber and plastic products

This industry group appears for the first time, replacing mining and crude oil production, which now includes too few companies to be surveyed. Rubbermaid and Goodyear lead handily, and each scores best on four attributes—Rubbermaid for product quality, innovativeness, investment value, and asset use.

Rank[2]	Company	Score
1	Rubbermaid	7.59
2	Goodyear Tire & Rubber	7.50
3	Armstrong Rubber	6.32
4	Cooper Tire & Rubber	6.00
5	B.F. Goodrich	5.89
6	GenCorp[3]	5.73
7	Firestone Tire & Rubber	5.54
8	Dayco	5.32
9	Dorsey	5.22
10	Uniroyal	5.19

Utilities

AT&T ranks at the top of its group for every attribute of reputation but hasn't made it back to the ten most admired list. Two years ago, before divestiture, AT&T was No. 6 in the survey; now it is No. 28. GTE is last in its industry group for product quality, but analysts score it best for investment value.

Rank	LAST YEAR	Company	Score
1	1	AT&T	7.31
2	2	Texas Utilities	6.86[7]
3	3	Southern California Edison	6.86[7]
4	4	GTE	6.68
5	6	Pacific Gas & Electric	6.46
6	5	Commonwealth Edison	6.40
7	8	American Electric Power	6.18
8	7	Southern Co.	6.13
9	9	Public Service Electric & Gas	6.08
10	10	Middle South Utilities	5.42

[1] Not ranked last year.
[2] This industry was not surveyed last year.
[3] Formerly General Tire & Rubber.
[4] Tied last year.
[5] Spun off from Trans World Corp. (ranked eighth last year) February 1984.
[6] Tie. Each scores higher than the other on four of eight attributes.
[7] Tie. Texas Utilities scores higher than Southern California Edison on six of eight attributes.

THE COMING GLUT

For an MCI fiber-optic link *between Cleveland and Chicago, this cable plow digs a trench along a CSX Corp. railroad right-of-way in Indiana. MCI plans to*

OF PHONE LINES

lay 18,000 miles of fiber by 1988.

PHOTOGRAPHS BY OVAK ARSLANIAN

If all the fiber-optic telephone systems that have been announced are built, the U.S. long-distance network will soon sextuple in size. Some bettors on fiber will get hurt, but customers will find ways to put the glut to use. ■ *by William B. Johnston*

MAKING USE OF astounding advances in technology, a dozen companies plan to spend some $6 billion in the next four years to build new long-distance telephone networks that will be the backbone of the U.S. communications system in the 1990s and beyond. Using lasers and hair-thin glass fibers, these new fiber-optic systems will be able to carry up to 400,000 light-borne calls simultaneously over a single cable less than an inch in diameter—ten times as many as today's densest microwave-radio route.

If all the new projects get off the drawing boards, the capacity of the U.S. long-distance network would grow more than sixfold in the next four years (see table). In November AT&T revealed plans to complete a 10,000-mile fiber network by 1988. Fibertrak, a joint venture of two railroad holding companies, Norfolk Southern Corp. and Santa Fe Southern Pacific Corp., says it will build an 8,100-mile network on railroad rights of way. It is scheduled for completion in 1987.

United Telecommunications, a Kansas City-based company with estimated 1984 sales of $2.9 billion, plans a 23,000-mile system. MCI Communications and GTE Sprint Communications, a subsidiary of GTE, will each build a nationwide fiber-optic network; together they'll add 22,000 miles. Lightnet, a joint venture of CSX Corp. and Southern New England Telephone, is building a 4,000-mile system serving 43 cities in 24 Eastern and Midwestern states. Proposals for other regional systems abound.

The Yankee Group, a Boston research and consulting firm that follows the telecommunications industry, predicts a huge glut of long-distance capacity in the years ahead. "The only way we'll be able to use all this capacity," quips Howard Anderson, Yankee Group managing director, "is if Congress passes a law requiring every American to participate in five video conferences each day." Adds Dale F. Pilz, chief executive of GTE Sprint, "If all the recently announced building programs are carried out, first thing you know we'll have enough capacity to last this country forever."

Like most industry leaders, however, Pilz does not believe that all the systems will be built. Competition for capital, customers, and glass fiber will weed the talkers from the builders, he says, and keep supply from outdistancing demand. Most companies planning fiber systems agree that there won't be room for everyone, but none of the competitors seems ready to fold its hand just yet. Asserts William Esrey, executive vice president of United Telecommunications, "I don't know who else is bluffing, but we're not."

The rate at which fiber-optic technology is advancing makes at least a short-term glut seem inevitable. In 1983 M/A-Com, a telecommunications equipment supplier, installed what it thought was "the communications system of the future" at Disney World's Epcot Center in Florida. Capable of carrying 1,400 calls on each pair of fibers, the Epcot system used lasers that pulsed on and off 90 million times each second. The amount of data that can be transmitted is directly proportional to the number of pulses per second. Current fiber-optic systems operate at 560 million pulses per second, and suppliers are promising equipment that will triple these speeds by 1987. One maker of transmission equipment is Telco Systems Fiber Optics Corp. of Menlo Park, California. Referring to the early years of radio, Telco President Robert L. Bowman says, "We are still in the crystal-set era of fiber optics."

Systems now planned or installed are designed to be upgraded as new technology becomes available. AT&T initially will install a system capable of handling 6,000 calls per pair of fiber strands. In 1988 the company plans to upgrade its network to carry four times as many calls simply by installing new electronics in terminals and repeater stations along the routes.

With the increase in capacity comes a dra-

RESEARCH ASSOCIATE *Sarah Smith*

matic drop in costs. Measured by one common yardstick, the investment required to build a system to carry one call one mile—or cost per circuit-mile—fiber offers an 85% savings over present technology. George K. Petty, director of network planning for AT&T Communications, the long-distance arm of AT&T, says that his company's present network averaged more than $7 a circuit-mile when it was installed. Fiber systems, Petty says, can be installed for less than $1 a circuit-mile.

How will mind-blinding amounts of added low-cost transmission capacity be used? No one is quite sure, but the companies installing the new fiber-optic systems are confident that demand will rise to meet supply. Requirements for video teleconferencing, facsimile, and video-text services are increasing, they say, and video transmission requires much more capacity than voice or data. These companies also assert that fiber optics will make economically feasible many services that cannot yet be imagined. Says John Puente, vice chairman of M/A-Com: "I don't know exactly how these huge pipes will be used, but it will happen."

History is on the side of the visionaries. The story of IBM's early estimate of the potential demand for mainframe computers (no more than 50 worldwide) is often repeated by fiber-optic enthusiasts. Americans may think little in a decade or so of dialing up a digital symphony after dinner or of sending a friend a copy of a favorite movie by phone.

For at least the next five years, however, fiber-optic networks will continue to be used primarily for the pedestrian task of transmitting the conversations of people. "Data transmission may be growing very rapidly," says C. Gus Grant, president of Fibertrak, "but it is still voice that pays the bills."

If voice is to pay for new investment in fiber systems, it must grow rapidly indeed. But most telecommunications analysts expect demand for long-distance voice service to grow at about its historical average of 9% to 10% per year, an increase of just under 50% by 1988. If all the planned new fiber networks are built, the total capacity of the U.S. long-distance system will grow some 500%, from about 1.4 billion circuit-miles to more than eight billion circuit-miles by 1988.

Though this excess of supply should cut wholesale prices for voice transmission via fiber networks, it will not have much immediate effect on the price consumers pay for long-distance telephone service. Transmission costs are a small share—typically less than one-fifth—of the total cost of long-distance service, with the costs of local switching, billing, marketing, and telephone company overhead making up more than four-fifths of the cost of a typical long-distance call. With retail prices largely unaffected, little short-term increase in demand for voice telephone service is likely.

The prospect of a huge oversupply of transmission capacity to serve the voice market is causing second thoughts among some companies that have announced massive building programs and tight construction schedules. Several that initially planned separate building programs between the same cities have agreed to team up to share facilities and construction costs. United Telecommunications and Lightnet will get together to build and use fiber links between several cities east of the Mississippi. Many industry participants predict that more such sharing agreements will be announced before long. Some companies that are building regional fiber-optic systems plan to form a national consortium, hoping to strengthen their marketing positions without duplication of facilities.

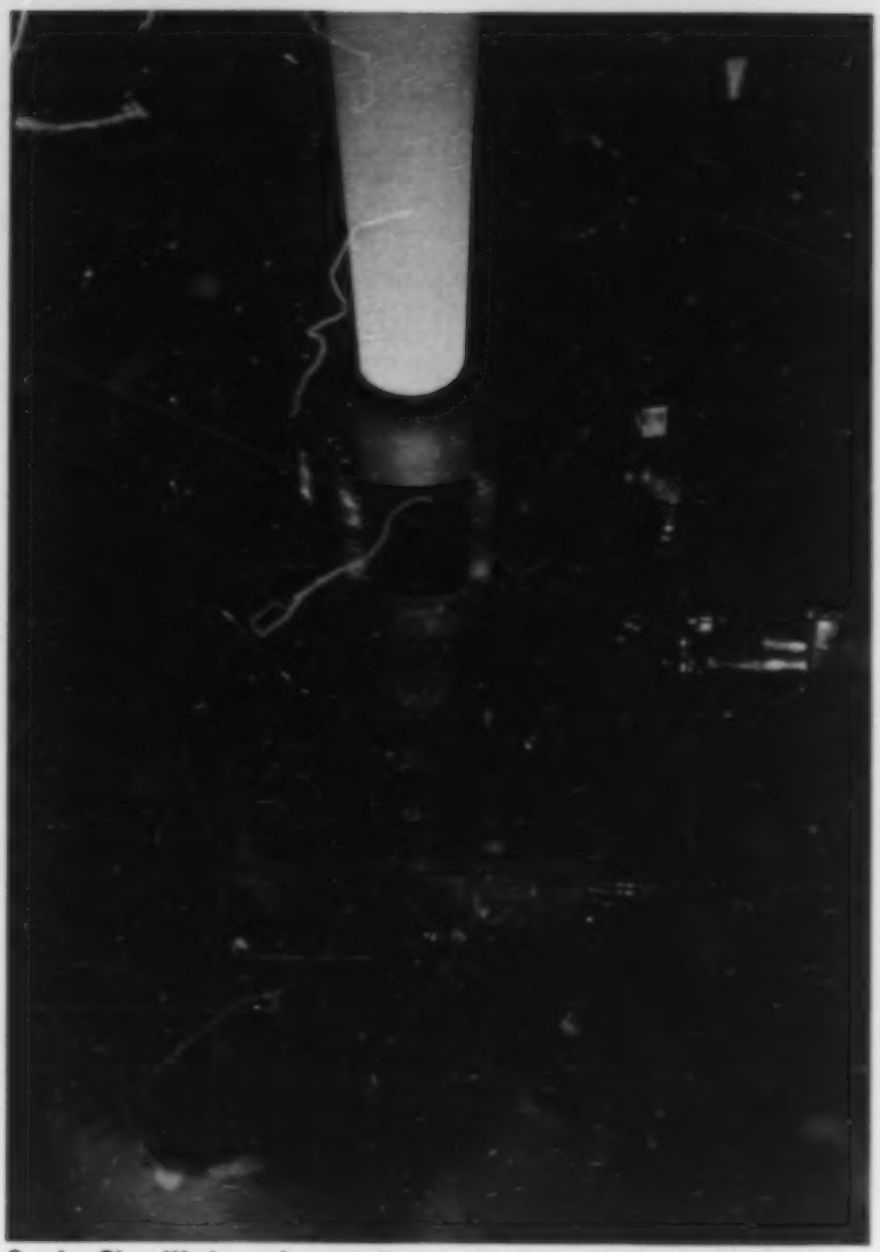
Encased in plastic, *glass fibers are wound at a General Cable plant in Massachusetts.*

SHORTAGES of glass fiber and electronic components could also slow the boom. Especially during 1985 there may be too little fiber to meet the ambitious building plans already announced. A fiber manufacturer concedes, "If everybody builds everything they are talking about, there will be a shortage." To meet the expected surge in demand, fiber suppliers are feverishly gearing up production. Corning Glass Works, a leading supplier of fiber, plans to increase annual capacity in 1985 to 620,000 fiber miles. That's probably more than the entire industry produced in 1984.

A more critical building material could also be in short supply: money. Several proposed ventures still need financing. They are likely to find a cool reception on Wall Street. An investment banker involved in a fiber-optics money-raising effort says that potential investors who got burned when overcapacity kept satellite companies from taking off as predicted "are evaluating fiber ventures very cautiously."

But obstacles to construction and efforts to consolidate may not be enough to head off a glut. The prospect of overcapacity is itself helping to fuel the overbuilding. Like office developers hoping to cash in on a temporarily tight leasing market, the network builders are all scrambling to climb through the same window of opportunity. Fearful that customers will sign up with whoever first offers service, and hoping to scare off competitors, most companies are hurrying to bury cable and begin operations. "It's very important to be first," says Lawrence A. McLernon, chief executive of Litel, a new venture actively building a fiber network in the upper Midwest. He adds: "The time for making decisions is a nanosecond."

Potential customers apparently agree. Satellite Business Systems, a McLean, Virginia,



Corning Glass Works engineers *in North Carolina draw molten glass into hair-thin fibers.*

company that provides long-distance voice and data services over its own satellite network, is negotiating with several companies to acquire fiber transmission facilities for part of its voice traffic. Says Joel Engel, SBS vice president of engineering: "We're ready to make some commitments to move this process along." Michael Richer, chief executive of Allnet, a rapidly growing long-distance company headquartered in Chicago, is even more emphatic about intending to sign long-term transmission contracts soon. "We're not going to be shopping for capacity in 1988," he asserts.

An old telecommunications industry mindset may also encourage overbuilding. For years companies in the business have believed that their long-term survival depended on owning transmission facilities. Among AT&T rivals, says Grant of Fibertrak, who was formerly vice chairman of Southern Pacific Communications Corp., the predecessor of GTE Sprint, "the belief that you had to own your own network was based on years of grief trying to obtain circuits from AT&T." This build-don't-buy philosophy, and the desire to control completely the quality of the services offered customers, underlies decisions by MCI, GTE, and United to construct their own systems.

Apparently being first into a market is not enough to scare off the competition. In Florida, where Microtel and MCI are already operating, GTE and Lightnet are installing fiber and AT&T plans to build a system. Several construction crews have inadvertently plowed up and severed fiber cables laid by rivals.

ONCE MULTIPLE systems are installed, a price war is almost sure to break out. With most of their capital already buried in the ground and with low variable costs of serving new customers, fiber-optic network owners will have every incentive to cut each other's throats.

A group certain to benefit from the bloodshed: big resellers of telephone service, who buy large amounts of transmission capacity at bulk rates and sell it at retail rates to business and residential customers. A few carriers are so sure of an impending glut that they are turning their backs on the axiom that mandates ownership of facilities. "We have chosen not to make further substantial investments in transmission capacity because we believe there will be plenty of capacity available," says Robert J. Braverman, chief executive of ITT Communications and Information Services Group. He is talking about low-cost capacity, of course.

In an effort to attract customers, new carriers are offering increasingly attractive prices and terms. Lightnet has recently reduced the price it quotes for high-volume, long-term services. Many carriers are promising "most favored nation" status to prime customers, guaranteeing that they will always receive the lowest prices offered by the carrier to other similar customers. One carrier, LDX Net, is even offering to guarantee large customers that it will meet *any* price offered on similar terms by anyone competing in its markets in the future.

Large business customers that operate their own communications networks may also benefit from a fiber glut, especially if they can find ways to tap directly into the new low-cost long-distance networks. Long-distance rates currently subsidize local residential service—a strong incentive for large business users to bypass local exchanges. The existence of far cheaper, high-volume information superhighways will make it even more attractive for companies to construct their own links to the long-distance telephone network.

The new fiber-optic networks will not benefit everyone. Companies that have invested heavily in other long-distance technologies,

COMPANY Investors	AREAS SERVED	INVESTMENT[1]	CIRCUIT[1] MILES	ROUTE MILES Completion date
AT&T Communications	Nationwide	$1.3 billion	1.7 billion	10,000 1988
MCI Communications	Nationwide	$500 million	650 million	18,000 1988
GTE Sprint	Nationwide	$130 million	110 million	4,000 1989
United Telecommunications	Nationwide	$2 billion	1.2 billion	23,000 1988
Fibertrak Santa Fe Southern Pacific and Norfolk Southern	Nationwide	$1.2 billion	2.4 billion	8,100 1987
LDX Net Kansas City Southern Industries	Midwest and South	$110 million	165 million	1,700 1986
Electra Communications Cable & Wireless and Missouri-Kansas-Texas Railroad	Texas	$40 million	72 million	550 1985
Microtel Alltel, E.F. Hutton, M/A-Com, Centel, and Norfolk Southern	Florida and Georgia	$60 million	45 million	1,500 1986
Litel Telecommunications Centel, Alltel, and Pirelli	Upper Midwest	$57 million	85 million	1300 1986
Lightnet CSX and SNET	South, East, and Midwest	$500 million	650 million	4,000 1986
SouthernNet E.F. Hutton and independent telephone companies	Southeast	$90 million	50 million	1,600 1986
RCI Rochester Telephone	Northeast and Midwest	$90 million	87 million	900 1986

[1]Hudson Institute estimates

Players and Plans in the Great Fiber-Optics Race

These dozen companies say they plan to add more than seven billion circuit-miles to the U.S. long-distance telephone network. One circuit-mile equals one voice conversation carried over one mile of telephone line. Circuit-miles now available in the U.S. : an estimated 1.4 billion.

such as satellites and microwave radio, may find fiber systems invading their markets. In particular, the use of satellites for voice telephone service appears threatened. Because the cost of satellite calls is the same no matter how far the call travels, satellites have been widely used for very long distance calls. But cheap fiber circuits could undercut this economic advantage. Major long-distance telephone companies now believe that satellites should be used only for backup service, or on routes that carry few calls but span great distances.

Some telephone executives insist that there will be a place in the network for all technologies, pointing out that 15 years ago there were unfounded predictions that satellites would completely outmode microwave-radio transmission. But as Esrey of United says, speaking of voice communications, "If I were in the satellite business, I would be concerned."

While industry rivals debate who can build fiber links more quickly and cheaply, and who can manage them more efficiently, the real issue is simple: who will have the customers? Carriers that are building fiber systems to serve a substantial existing customer base are in a far stronger position than those who are betting that they can build first and find customers later. "Anybody can build these big pipes," says Petty of AT&T. "The trick is filling them."

The "carriers' carriers" such as Fibertrak, Lightnet, and Electra, which intend to sell transmission services wholesale, may be in a particularly precarious position. Not only must they battle for the relatively few customers not served by AT&T, MCI, or GTE, they must also be concerned with whether the resellers and other customers they attract can stay in business. If a shakeout occurs, traffic generated by these customers could be shifted suddenly to other fiber-system operators or the established carriers.

SURPRISINGLY, AT&T may benefit most from the fiber-optic revolution, though much of its current network will be outmoded by the new technology. With huge traffic volumes, the company will get a greater payoff than others from installing high-capacity fiber. And because much of AT&T's construction program is not scheduled to be completed until the late 1980s, the company may have the luxury of choosing between building facilities or buying capacity at fire-sale prices from fiber ventures that falter.

A successful AT&T could cast a dark shadow over the shining prospects its rivals see in fiber optics. Many of the companies assume that they will prosper because they expect the industry giant's share of the long-distance market will drop from its current 92% to as little as 60% to 70% by 1990. But the industry leader may not lose so much ground. A study submitted to the Federal Communications Commission by the Ad Hoc Telecommunication Users Committee, a group of large businesses, suggests that, contrary to general belief, AT&T may be the lowest-cost producer in the industry. If the FCC were to permit open competition, says the committee, it's doubtful that many other carriers could survive, let alone increase their market shares.

AT&T may decide it has to give up market share voluntarily to avoid stringent government regulation. Or the FCC might decide to continue policies that give the company's rivals a cost break, on the notion that doing so fosters competition. But none of the smaller companies rushing to expand the U.S. long-distance network can count on that. If AT&T holds onto its preeminent position, many companies betting on fiber optics will be turning out the lights. ■